

59. (Amended) A method of estimating the effects of tissue attenuation on the intensity and energy distribution of a an x-ray beam comprising:

 calibrating an energy-resolving detector array by determining its energy-dependent modulator transfer function,

 aligning the calibrated energy-resolving detector array with the x-ray beam,

 measuring a first position-dependent, energy-dependent intensity profile of the x-ray beam at the detector array,

 transmitting the x-ray beam through a patient,

 measuring a second position-dependent, energy-dependent intensity profile of the x-ray beam at the detector array immediately after the beam has been transmitted through the patient, and

 comparing the first and the second position-dependent, energy-dependent intensity profiles of the beam.

REMARKS

In the Final office action of 06/15/2006 the amended claim 57 was rejected, claim 58 was objected to, and amended claim 59 was allowed. In response, claim 57 is now cancelled. Claim 58 has been amended by incorporating claim 57 into claim 58. Allowed amended claim 59 is included. Claim 58 is amended based on the understanding that an x-ray source (or gamma ray source) used in imaging will consist of at least one and typically multiple x-ray (or gamma ray) energies. In many instances the energy distribution and the intensity (the level) of radiation will not be uniform throughout the x-ray beam. For example, suppose a x-ray source emits 2 energies, 40 keV and 60 keV. A detector pixel on one side of the detector may see 100 of the 40 keV and 100 of the 60 keV x-rays during a brief period of integration. But a detector pixel on the opposite side of the detector may only see 75 of the 40 keV and 90 of the 60 keV x-rays. Detector pixels in the middle of the detector are likely to see a different level and distribution of 40 keV and 60 keV x-rays. In the case of conventional medical radiography x-ray tubes with angled tungsten anodes, this effect is known as 'beam hardening'. The x-ray beam is harder (has more x-rays of higher energy) in one direction. The final line from the original version of claim 58 is considered to be redundant and is removed..

CONCLUSION

Applicants respectfully submit that amended claim 58 overcomes the Examiner's objections and respectfully request that the Examiner reconsider and withdraw the outstanding objections and allow amended claim 58. Applicants thank the Examiner for his helpful comments.

Respectfully submitted,

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